

Knowledge Brokers in Action: A Game-Based Approach for Strengthening Evidence-Based Policies

Karol Olejniczak, Tomasz Kupiec, and Igor Widawski

Abstract Public policies need research results in order to effectively address the complex socioeconomic challenges (so-called evidence-based policies). However there is a clear gap between producing scientific expertise and using it in public decision-making. This “know-do” gap is common in all policy areas. Knowledge brokering is a new and promising practice for tackling the challenge of evidence use. It means that selected civil servants play the role of intermediaries who steer the flow of knowledge between its producers (experts and researchers) and users (decision-makers and public managers). Knowledge brokering requires a specific combination of skills that can be learned effectively only by experience. However this is very challenging in the public sector. Experiential learning requires learning from own actions – often own mistakes, while public institutions tend to avoid risk and are naturally concerned with the costs of potential errors. Therefore, a special approach is required to teach civil servants.

This chapter addresses the question of how to develop knowledge brokering skills for civil servants working in analytical units. It reports on the application of a simulation game to teach civil servants through experiential learning in a risk-free environment. The chapter (1) introduces the concept of knowledge brokering, (2) shows how it was translated into a game design and applied in the teaching process of civil servants, and (3) reflects on further improvement. It concludes that serious game simulation is a promising tool for teaching knowledge brokering to public policy practitioners.

Keywords Knowledge broker • Knowledge use • Public management • Teaching civil servants • Serious games

K. Olejniczak (✉)

Centre for European Regional and Local Studies (EUROREG), University of Warsaw,
Krakowskie Przedmiescie 30, 00-927, Warsaw, Poland
e-mail: k.olejniczak@uw.edu.pl

T. Kupiec

EGO s.c. – Evaluation for Government Organizations, Warsaw, Poland

I. Widawski

Pracownia Gier Szkoleniowych – PGS, Warsaw, Poland

1 Introduction

1.1 *The Challenge of Knowledge Brokering*

Decision-makers and public managers need research results in order to conduct effective public interventions that serve citizens and improve socioeconomic development. The usefulness of evidence-based policies is confirmed by both modern literature on public policies and the practice of public management (Banks 2009; Cartwright and Hardie 2012; Nutley et al. 2007; Shillabeer et al. 2011).

However, there is a clear gap between producing research studies (including applied expertise such as evaluations) and using their results in decision-making (Cartwright 2013; Majone 1992; Shulha and Cousins 1997; Weiss and Bucuvalas 1980).

Recent literature on evidence use in public policies points to “knowledge brokering” as a promising strategy for tackling the “know-do” gap (Dobbins et al. 2009; Lomas 2007; Waqa et al. 2013; Clark and Kelly 2005; Oliver et al. 2014). Knowledge brokering requires a set of specific skills: (1) recognizing the knowledge needs of policy actors, (2) acquiring credible studies, (3) reaching users with appropriate dissemination strategies, and (4) combining the results of different studies into an evidence-based foundation for decisions.

Government agencies try to build the knowledge brokering skills of their personnel. However, this is very challenging in the public sector. First, knowledge brokers in the public sector operate on the brink of two rationalities, where the rational, evidence-based approach collides with the logic of political negotiations (Bots et al. 2010; Sanderson 2002). Second, effective learning requires experimentation and learning from one’s own actions, often own mistakes, while public institutions tend to avoid risk and are naturally concerned with costs of potential errors (Barrados and Mayne 2003; Hood 2007). Therefore, a special approach is required to teach these skills.

1.2 *Chapter Aim and Contribution to the Current Practice of Teaching with Games*

This chapter addresses the problem of teaching civil servants knowledge brokering skills, with the use of experiential learning in a risk-free environment. The chapter reports on the application of a specially designed simulation tabletop game for teaching Polish civil servants (for more information on the game, see <http://www.knowledgebrokers.edu.pl>). It is an example of gaming research in policy area that uses serious games for policy implementation and organizational change (compare Caluwe et al. 2012).

The chapter brings the following new contributions to current practice and literature: In terms of the topic, the chapter introduces serious gaming as a new

tool for addressing an important public policy issue – effective research utilization in decision-making. In terms of players, the chapter illustrates how the game was used to teach a very conservative and demanding type of learners – public civil servants. In terms of application, the chapter shows how the game can effectively address the challenge of experiential teaching in an organizational environment that has low tolerance of risk and experimentation.

The chapter has practical value for two groups of audiences. For professionals who teach evaluation and for public sector officials, it shows an innovative way of approaching training. For experts in gaming and simulation, it offers an illustration of how the complex reality of public program delivery can be turned into a game design without losing its connection with reality.

1.3 Method

The reported game application is grounded in sound, scientific evidence. The content of the game is based on (1) 7 years of the Academy of Evaluation postgraduate program for Polish senior civil servants, (2) a systematic review of literature on evaluation use and knowledge brokering (over 900 research chapters), and (3) empirical research of evaluation unit practices (a survey of Polish units, interviews, consultations, and focus groups with representatives of European and American evaluation units) (Olejniczak et al. 2016).

The initial workshop and game design was developed during the ISAGA 2014 summer school. The game mechanics were tested during two game sessions with ten representatives of Polish evaluation units. After each session both the content and form of the game were modified. Further calibration of the workshop content was performed during a session with MA students of regional development studies.

The chapter is divided into three sections. In the next section, the theoretical framework of the simulation is discussed. The second section explains how the theory was translated into a game design and applied in the teaching process of civil servants. The final section presents an initial evaluation of the game's effectiveness and reflection on further improvements.

2 Theoretical Framework

The content of the game focuses on the practice of knowledge brokering. It has been grounded in extensive literature and empirical research on evidence use in decision-making and knowledge brokering.

Knowledge brokers (KBs) are units in government that serve as an intermediary between the worlds of science, politics, and public interest (Gutierrez 2010; Fischer 2003). These are always persons or a group of people, not an automated system or a database (McAneney et al. 2010).

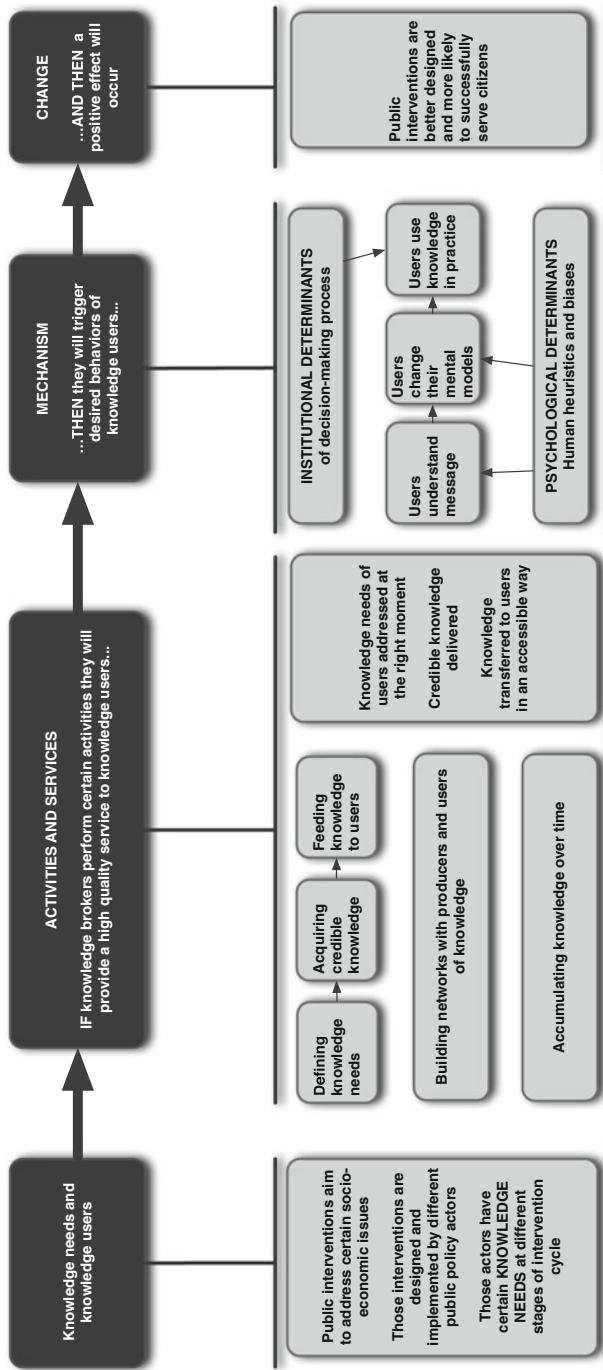


Fig. 1 The logic of knowledge brokering (Olejniczak et al. 2016)

The goal of knowledge brokers is to help decision-makers in acquiring and using credible knowledge for better planning and implementing of public interventions. Thus, successful knowledge brokering leads to effective public intervention and social betterment (Olejniczak et al. 2016).

Figure 1 presents the logic of knowledge brokering activities as a factor that improves the effectiveness of public interventions. The core narrative of this logic is as follows: actors involved in running public policies have certain knowledge needs at different stages of policy interventions. If the knowledge broker executes a set of actions that provide those policy actors with useful knowledge, then the actors, by absorbing that knowledge, will deepen their understanding of public intervention, and then they will plan and implement intervention in a way that better serves the public interest. As we can see, the job of knowledge brokers is mainly about recognizing the knowledge needs of decision-makers, finding and combining evidence and experiences from different sources, translating them into the language of practice, and introducing them to the world of practitioners (Lin 2012; Mavoa et al. 2012; Willems et al. 2013).

There are four points that are crucial for the way knowledge brokers operate. First, the focal point is public intervention or, to be more specific, knowledge needs concerning a particular intervention and the problems and issues arising from it. This means that brokers have to follow the policy implementation cycle.

Second, knowledge needs are always articulated by a particular actor – politicians, senior civil servants, or managers. So, there is a clearly defined group of knowledge users, in other words – clients of the brokers.

Third, success in brokering depends on the configuration of factors. The broker has to match different elements with each other: (a) the type of knowledge needed with the method of acquiring it (research design), (b) client types with knowledge feeding methods, and (c) timing of knowledge delivery.

Fourth, there is a certain degree of uncertainty between the brokers' action and their impact on a decision. Research evidence is only one of many factors influencing the decision-making process. Other factors are political rationality, organizational dynamics, characteristics, and reasoning processes of the knowledge users. However the better the quality of brokers' activities and the stronger the evidence base they present, the higher the chances of positive influence.

3 Practical Application

3.1 Game Description

The overall aim of the game was to teach participants the key skills of knowledge brokering required for playing the role of an intermediary who steers the flow of knowledge between its producers and users. These skills are (1) understanding knowledge needs, (2) acquiring credible knowledge, (3) feeding knowledge effectively to users, (4) building an evidence-based foundation for public interventions, and (5) managing an analytical unit.

The initial idea of the game was to allow civil servants see the simplified mechanisms of decision-making and reflect on them while at the same time keeping it concrete, not too abstract or out of their comfort zone. Therefore, the decision was not to use a metaphor but, instead, to recreate in a game the key operational rules and elements of the system that are familiar to civil servants. The challenge was to transfer the key elements of the system into a game while at the same time reducing the complexity of the real-life operations of regional policies. Eventually, the following narrative was developed.

Participants are divided into six groups. Each group manages an analytical unit in a region. Their mission is to support decision-makers with expertise in implementing four types of socioeconomic interventions. These are combating single mothers' unemployment, developing a healthcare network, revitalizing a downtown area, and developing a public transportation system for a metropolitan area.

With each turn in the game, knowledge needs appear for each intervention. They can relate to a descriptive or diagnostic issue of the problem tackled by the intervention (know about the issue), explore the effects of the implemented or planned solutions (know what works), inquire about the explanation for the success or failures of the particular project (know why things work), or refer to procedural, managerial issues (know how to implement).

Knowledge needs take the form of concrete questions that relate to issues arising during different implementation stages of these projects. For example, in a project on the public transportation system, during its implementation phase, the following questions arise: (a) How do habitants of the metropolis use the new network of transport connections (including the different transportation modes available) provided by the public authorities? (b) What barriers do disabled persons experience when using the newly introduced public transportation system? (c) How to change prices for public transport tickets and charges for parking in the downtown area to encourage citizens to switch from driving their private vehicles to using public transportation?

Over the course of the game, players have to react to 19 different knowledge needs, often appearing simultaneously in different public interventions. Players have to (1) contract out studies with an appropriate research design, (2) choose key users of the study, and (3) choose methods for feeding knowledge to users. The spectrum of options available to players is presented in Table 1.

The choices of players are determined by the resources available to them: the number of staff in their units and the time required to complete each task. Players can be proactive and invest their resources in networking (to discover knowledge needs in advance) or archive searching (to find already existing studies). Players delegate staff members to these tasks. While networking or archive searching, it is impossible for that particular staff member to engage in any other activity during the current round (e.g., report preparation).

After each turn, each group receives detailed feedback that includes three elements: (1) a percentage on how well the team matched research designs to knowledge needs and feeding methods to users, and the higher the match, the

Table 1 Options available to players

Item	Description	Available options
Research designs	Research designs are logical structures that guide the execution of research methods and the analysis of data	(1) Meta-analysis (2) Experiments and quasi-experiments
	Different research designs are appropriate for different research questions	(3) Statistical study (4) Simulation game (5) Theory-driven evaluation (6) Case study (7) Participatory approach (8) Descriptive study
Knowledge users	Types of decision-makers who can use research results for the design and management of public interventions. Each type is interested in different knowledge and has certain preferences for knowledge feeding methods	(1) Politician (2) Head of a department (3) Project manager
Knowledge feeding methods	Forms of presenting research results and channels of disseminating those results to knowledge users	Forms of presentation 1. Policy brief 2. Recommendation table 3. Logic model 4. Video presentation or iconographic 5. Argument map 6. Dashboard Channels of dissemination 7. Small discussion meeting 8. Big meeting or conference 9. Contact through advisors 10. Personal contact with user

higher are the chances that knowledge will be used by decision-makers; (2) information on the final effect: if a policy actor made a decision based on delivered knowledge or other premises (e.g., political rationale), and (3) hints on good research designs, types of users, and feeding methods for future turns.

Groups of players compete with each other. Depending on how well they match research designs, users, and feeding methods, they receive up to 100 points per knowledge need. Teams accumulate points throughout the game and the winning team is the one with the highest score. However, there is also another way to assess

Table 2 Knowledge brokers' skills translated into game learning goals

Key skills of knowledge broker	What it means for players
(1) Understanding knowledge needs	(1a) Players recognize different stages of an intervention
	(1b) Players recognize involvement of different actors at different intervention stages
	(1c) Players recognize different types of knowledge needs and the form of questions in which they are articulated
(2) Acquiring credible knowledge	(2a) Players match research questions with optimal research designs
	(2b) Players match research questions to types of interventions
(3) Feeding knowledge effectively to users	(3a) Players match feeding methods to the types of users
	(3b) Players recognize and combine two different types of feeding methods – those related to communication forms and those related to channels of dissemination
(4) Building evidence-based foundations for public interventions	(4a) Players combine results of different studies to build a coherent argument – a knowledge stream
	(4b) Players understand that evidence is only a part of decision-making; other considerations (e.g., politics) can heavily influence the result of their mission
(5) Managing an analytical unit	(5a) Players understand the whole sequence of KB unit activities
	(5b) Players manage the time and staff of their unit
	(5c) Players know that a proactive approach pays off – looking for knowledge needs in advance gives more time for strategy development

players' performance. Each result for an individual knowledge need (ranging from 0 to 100) is a probability rate that determines what is the chance that the report will be actually used by the decision-maker. The algorithm checks, based on this probability, if a particular report will be used by a decision-maker and then notes it in a different section of the team score. In effect, every team has two types of score: the first based on accumulation of points throughout the game and the second that informs players how many reports were actually used. The second type of scoring involves a strong element of randomness and luck (a team might succeed even if a report was worth only 20 points – which gives it a 0.2 chance of being used), while the first one reflects how well players can prepare reports. That is why facilitators put more emphasis on the first type of scoring, but at the same time, they also remind participants that there is always an element of luck and randomness in decision-maker use of reports for policy processes.

The learning goals of the workshop were grounded in research literature on knowledge brokering (compare previous section). They were translated into the list presented in Table 2.

3.2 *Game's Structure and Mechanics*

The simulation is structured as a progression game. It relies on a tightly controlled sequence of events that offers many predesigned challenges (Adams and Dormans 2012). Each team follows the same scenario, operating within a predefined timeline and with access to a certain number of given resources (Table 3).

The progression structure was chosen for three reasons. The first reason was related to one of the learning goals (goal 5a). It was to introduce players to the full process of knowledge brokering within analytical units. This is a well-defined process (both in literature and in practice) and it is based on certain intermediary phases and steps. The progression structure of the game allowed designers to recreate the chronology of this process, so that the players can understand the logic behind the procedures that they will encounter in real-life situations.

The second reason was an approach to facilitation. Due to the complex nature of the knowledge brokering process itself, it was important to grant the facilitator tools for easy control over the game play. The tightly controlled sequence of events and predefined progression of the game are helpful for having an overview of the current situation and enhance the ability of the facilitator to identify challenges and problems that players might face at a particular moment. This knowledge is crucial in terms of ongoing observation, assistance, and providing feedback.

The third reason for the progression game structure was flow and learning. In order to design an engaging learning process, it is necessary to adjust the level of challenges to the skills of participants and keep the right balance between the two as the game progresses (Pavlas 2010). Control over the exact order of incoming “knowledge needs” and events is necessary in a game like KB to keep players in a state of flow instead of anxiety or boredom. Even a minor disruption or the wrong combination of resources, events, and time given for a round might strongly influence the stability of the learning process.

The game of knowledge brokering uses five types of mechanics. These are achievements, countdown, resource management, collaboration, and unexpected events. We briefly discuss them below:

1. Achievements

The psychological drive of achievement is well known and often used in both offline and online games (Felicia 2011). A system of achievements motivates players to perform a certain number of specific actions and provides automatic feedback. In most cases, it is accompanied by some sort of progression mechanic (e.g., progression bar), which helps players to notice how many actions of a certain type should be performed to gain an achievement. In the KB game, there are 19 achievements. These are 19 knowledge needs that need to be understood and resolved by the player in a certain amount of time. Players are presented with up to six steps to complete the report and deliver it to the decision-maker. These steps may be considered as a form of a progression bar that a player needs to complete to gain an achievement. The player can decide whether to have a three-, five-, or even six-step progress bar. Every additional step increases the

Table 3 Sequence of the round

Step of the round	Description
1. Timeline update	Each team moves the time marker to indicate the current round. Every round is 1 month
2. Resource recovery	Each team collects all the resources taken from them in the previous round. Recovered resources include networker, archivist, components of a finished report, staff members, research designs, knowledge users, and knowledge feeding methods
3. Event	In each round there is an event that influences the current state of the evaluation unit. Some of the events are helpful to the player (e.g., recruitment of new staff members) and some are harmful (e.g., delays in report preparation, blocked resources, etc.). A number of events are formulated as an alternative: players can do A or B. Each team is obliged to make a choice between these two options and faces the consequences of the chosen strategy. The order of events is strictly planned and every group playing the game will encounter the same challenges
4. Delivery of finished reports	Every finished report should be delivered with all the resources placed on it to the facilitator. All the data from the report is then transferred into the system and the score for the team is counted
5. Distribution of new knowledge needs	Each team receives a predefined number of new knowledge needs designed for a current round. If a team has already collected knowledge needs in advance (thanks to a networker), it does not receive a knowledge need designed for the next round. For example, in round 2, players receive four new knowledge needs (one for each intervention); in round 2 they send a networker to collect knowledge needs in advance for intervention A. Then at the beginning of the round 3 during the phase “distribution of new knowledge needs,” they receive knowledge needs for interventions B, C, and D, but not A (they already have it)
6. Action	Each team begins their work on new reports and can send a networker or archivist

probability that the completed report will be used by a policy actor – and so increases the quality of a gained achievement. After delivering a completed report, players receive a feedback form that informs them about the efficiency and the result of their work.

2. Countdown

In many games a countdown mechanism is used to add more frenetic activity (Penenberg 2013). It forces players to accelerate their decision-making process and engages them on an emotional level. There are two ways in which a countdown mechanic is used in the KB game. First, the main element of the board is a calendar that sets deadlines for particular tasks. It is an axis of players’ activity that demands their attention and frames their experience. With every round a special pawn is moved to indicate that the time is passing and there is not much left to prepare new reports. Players need to constantly keep an eye on the calendar and adapt to the current situation. The second countdown mechanism is the set time limit for a round (from 7 to 20 min). This mechanism is still being

calibrated to the exact amount of time to create a “countdown effect” and generate engagement.

3. Resource management

The main resources in the game are the pawns that represent the staff of the evaluation unit. Players can send a staff member to perform one of the listed actions: (a) prepare report for a specific knowledge need, (b) provide additional feeding methods to a report, (c) browse and collect materials from archives/databases, (d) network with decision-makers and acquire knowledge needs in advance, and (e) solve unexpected problems and deal with difficulties. The choices that players make in terms of resource management determine their final scores and to some extent influence the pace of the game (use of networker). The goal of this mechanic is to enhance strategic thinking about real-life constraints and to present various activities that might be performed within an analytical unit.

4. Collaboration

There are at least two types of in-game collaboration: the situation where success in a game action is achieved more quickly when played collaboratively and collaboration through discussion of game objectives (see Washmi et al. 2014). In the KB game, both types of collaboration are included. At the beginning, players receive five different pieces of information that describe various elements of the game in detail (e.g., research designs, policy actors, feeding methods, interventions, and general rules). It is very challenging for one person to comprehend all the delivered knowledge at once and perform all the necessary actions within the given time limit. Well-organized teams split the responsibilities between their members, so that each player specializes in a certain type of skills (e.g., research design specialist) and collaborates with his or her colleagues. That allows teams to complete tasks quickly and efficiently. At the same time, players need to have a general overview of the game’s objectives and together discuss their overall strategy (like use of resources or dealing with unexpected situations). This kind of collaboration also enables the players to learn from one another instead of just from materials or the facilitator.

5. Unexpected events

There are a number of unexpected events that take place between the rounds and influence the game play. Some of them are helpful and some obstruct a player’s efforts. A few events are presented in the form of a dilemma in which players have to choose between alternatives. Each team has to estimate which alternative will better fit their current strategy and will eventually pay the predefined cost of their choice. As J. Schell (2014) put it, “Risk and randomness are like spices. A game without any hint of them can be completely bland, but put in too much and they overwhelm everything else.” The KB game has a progression structure with a predefined scenario that determines the specific order of incoming “knowledge needs” and events. However, from a player’s point of view, the events are unexpected and bring a sense of randomness that makes a game more unpredictable and interesting.

4 Conclusions and Future Steps

The workshop session was conducted with 16 participants divided into six teams, during 1 day's training, from 10 am to 3 pm. The results of the workshop have been evaluated based on the game results and discussion with participants. The findings are summarized in Table 4.

Table 4 shows that the simulation successfully addressed most of the learning goals. In the comments players also underlined that the game project was realistic, especially with regard to time pressure and the randomness of political influence. Elements of the game mechanics such as comparisons between teams and feedback after each round also worked well.

However, what emerged from the results is the fact that players clearly missed the issue of knowledge credibility. For this brokering skill, players were not able to move beyond reactive behaviors and create mental models that would allow them to grasp the systemic relation between research questions and research designs. When asked about this issue, participants pointed at two aspects. First, the issue of research design was relatively new to them. Although it is well established in research practice, it is an emerging issue in the practice of government analytical units. Second, teams felt they did not have enough time to properly analyze, discuss, and reflect fully on the feedback that arrived during the sessions.

These results lead the authors of the game to the conclusion that the game design works well but that it should be integrated into a more coherent educational experience. Therefore, three further improvements in the workshop design are required. First, players should be provided with a preparatory reader that includes materials and examples of research design in the practice of public policy studies. This would allow players to get familiar with this new and challenging concept.

Second, teams should be given more time for their internal discussion after getting the feedback in each round. This would allow them to proceed with more group inquiry of system patterns and search for explanations.

Third, facilitators of the workshop should devote more attention in debriefing sessions to issue of research designs. The workshop should include at least three debriefing sessions, not only one at the end of the game. They could be designed as mini-lectures with a questions and answers part (Q&A). They would be aimed at group reflection on effective strategies of knowledge brokering. Participants, guided by questions and comments posed by the facilitator, (a) could discover the relations and mechanisms underlying the dynamics of evidence use in public decision-making, (b) would reflect on their own strategies implemented during the game, and (c) could develop new solutions to be tested further in the course of the game.

This last discovery from the workshop is in line with recent literature that underlines the importance of proper debriefing for the experiential learning and reasoning of adult professionals (Crookall 2010; Kato 2010; Kriz 2010). An idea for a modified workshop agenda is presented in Table 5.

Table 4 Assessment of obtained learning goals

Key skills of knowledge broker	Discovered by players	Missed by players
<i>(1) Understanding knowledge needs</i>		
(1a) Recognizing stages of the intervention	X	
(1b) Recognizing actors' involvement	X	
(1c) Translating needs into questions		X
<i>(2) Acquiring credible knowledge</i>		
(2a) Matching questions with research designs		X
(2b) Matching designs to topics of intervention		X
<i>(3) Feeding knowledge effectively to users</i>		
(3a) Matching feeding methods to users	X	
(3b) Combining forms with channels		X
<i>(4) Building evidence-based foundations</i>		
(4a) Building a coherent argument	X	
(4b) Understanding limited influence	X	
<i>(5) Managing an evaluation unit</i>		
(5a) Scope and sequence of KB activities	X	
(5b) Management of resources – time and staff	X	
(5c) Using a proactive approach	X	

Table 5 Modified agenda of the workshop on knowledge brokering

10 min	Introduction to the workshop aim
30 min	Explanation of the rules of the game
20 min	Training round 1 and clarification
30 min	Rounds 2–3
10 min	Break
10 min	Presentation of partial results
30 min	First debriefing session: mini-lecture on knowledge needs and research designs, Q&A, group internal deliberation
40 min	Rounds 4–6
30 min	Break
10 min	Presentation of partial results
20 min	Second debriefing session: mini-lecture on types of users and feeding methods, Q&A, group internal deliberation
40 min	Rounds 7–10
15 min	Break
15 min	Presentation of final results and choice of the winners
30 min	Final debriefing session and takeaway points for real-life practice
30 min	Evaluation of the game – the learning process itself

To conclude, the application of a serious game proved to be a promising tool for teaching knowledge brokering to public policy practitioners. The game structure and mechanics worked well. The workshop structure (team internal reflection after feedback, debriefing) requires further calibration to create a fully integrated and experiential learning experience.

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References

- Adams, E., & Dormans, J. (2012). *Game mechanics: Advanced game design*. Berkeley: New Riders.
- Banks, G. (2009, February 4). *Evidence-based policy-making: What is it? How do we get it?* Proceedings from ANZSOG/ANU Public Lecture Series, Canberra.
- Barrados, M., & Mayne, J. (2003). Can public sector organisations learn? *OECD Journal on Budgeting*, 3(3), 87–103.
- Bots, P., Wagenaar, P., & Willemsse, R. (2010). Assimilation of public policy concepts through role-play: Distinguishing rational design and political negotiation. *Simulation & Gaming*, 41(5), 743–766.
- Caluwe, L., Geurts, J., & Kleinlugtenbelt, W. J. (2012). Gaming research in policy and organization: An assessment from the Netherlands. *Simulation & Gaming*, 43(5), 600–626.
- Cartwright, N. (2013). Knowing what we are talking about: Why evidence doesn't always travel. *Evidence & Policy*, 9(1), 97–112.
- Cartwright, N., & Hardie, J. (2012). *Evidence-based policy: A practical guide to doing it better*. Oxford: Oxford University Press.
- Clark, G., & Kelly, L. (2005) *New directions for knowledge transfer and knowledge brokerage in Scotland: Office of Chief Researcher Knowledge Transfer Team briefing paper*. Scottish Executive Social Research. Scottish Executive Social Research.
- Crookall, D. (2010). Serious games, debriefing, and simulation/gaming as a discipline. *Simulation & Gaming*, 41(6), 898–920.
- Dobbins, M., Robeson, P., Ciliska, D., Hanna, S., Cameron, R., O'Mara, L., DeCorby, K., & Mercer, S. (2009). A description of a knowledge broker role implemented as part of a randomized controlled trial evaluating three knowledge translation strategies. *Implementation Science*, 4, 23.
- Felicia, P. (2011). *Handbook of research on improving learning and motivation through educational games: Multidisciplinary approaches*. Hershey: IGI Global.
- Fischer, F. (2003). *Reframing public policy: Discursive politics and deliberative practices*. New York: Oxford University Press.
- Gutierrez, R. (2010). When experts do politics: Introducing water policy reform in Brazil. *Governance*, 23(1), 59–88.
- Hood, C. (2007). What happens when transparency meets blame-avoidance? *Public Management Review*, 9(2), 191–210.
- Kato, F. (2010). How we think and talk about facilitation. *Simulation & Gaming*, 41(5), 694–704.

- Kriz, W. C. (2010). A systemic-constructivist approach to the facilitation and debriefing of simulations and games. *Simulation & Gaming, 41*(5), 663–680.
- Lin, Y.-H. (2012). Knowledge brokering for transference to the pilot's safety behavior. *Management Decision, 50*(7), 1326–1338.
- Lomas, J. (2007). The in-between world of knowledge brokering. *BMJ, 2007*(334), 129–132.
- Majone, G. (1992). *Evidence, argument, and persuasion in the policy process*. New Haven: Yale University Press.
- Mavoa, H., Waqa, G., Moodie, M., Kremer, P., McCabe, M., Snowdon, W., & Swinburn, B. (2012). Knowledge exchange in the Pacific: The TROPIC (Translational Research into Obesity Prevention Policies for Communities) project. *BMC Public Health, 12*(552), 1–9.
- McAnaney, H., McCann, J. F., Prior, L., Wilde, J., & Kee, F. (2010). Translating evidence into practice: A shared priority in public health? *Social Science and Medicine, 70*, 1492–1500.
- Nutley, S. M., Walter, I., & Davies, H. T. O. (2007). *Using evidence: How research can inform public services*. Bristol: Policy Press.
- Olejniczak, K., Raimondo, E. & Kupiec, T. (2016). "Evaluation units as knowledge brokers: Testing and calibrating an innovative framework". *Evaluation, 22*(2), 168–189.
- Oliver, K., Innvar, S., Lorenc, T., Woodman, J., & Thomas, J. (2014). A systematic review of barriers to and facilitators of the use of evidence by policymakers. *BMC Health Services Research, 14*, 2. doi:10.1186/1472-6963-14-2.
- Pavlas, D. (2010). *A model of flow and play in game-based learning: The impact of game characteristics, player traits, and player states* (Fall 2010). A dissertation submitted for PhD in the Department of Psychology, University of Central Florida.
- Penenberg, A. L. (2013). *Play at work: How games inspire breakthrough thinking*. New York: Penguin.
- Sanderson, I. (2002). Evaluation, policy learning and evidence-based policy making. *Public Administration, 80*(1), 1–22.
- Schell, J. (2014). *The art of game design: A book of lenses* (2nd ed.). London: A K Peters/CRC Press.
- Shillabeer, A., Buss, T. F., & Rousseau, D. M. (Eds.). (2011). *Evidence-based public management: Practices, issues, and prospects*. Armonk: M. E. Sharpe.
- Shulha, L. M., & Cousins, B. J. (1997). Evaluation use: Theory, research, and practice since 1986. *Evaluation Practice, 18*(3), 195–208.
- Waqa, G., Mavoa, H., Snowdon, W., Moodie, M., Nadakuitavuki, R., Mc Cabe, M., & Swinburn, B. (2013). Participants' perceptions of a knowledge-brokering strategy to facilitate evidence-informed policy-making in Fiji. *BMC Public Health, 13*, 725.
- Washmi, R., Baines, M., Organ, S., Hopkins, G., Blanchefield, P., & Busch, C. (2014). "Mathematics "problem solving through collaboration: Game design and adventure" In C. Busch (Ed.), *8th European Conference on Games Based Learning: ECGBL2014*, Berlin.
- Weiss, C. H., & Bucuvalas, M. J. (1980). *Social science research and decision-making*. New York: Columbia University Press.
- Willems, M., Post, M., van der Weijden, T., & Visser-Meily, A. (2013). Do knowledge brokers facilitate implementation of the stroke guideline in clinical practice? *BMC Health Services Research, 13*(434), 1–17.